

ABSTRACT

AN INVENTORY OF US MONITORING PROGRAMS: A TOOL FOR SCIENCE-BASED RESTORATION MONITORING OF COASTAL HABITATS

Amy D. Nickens, NOAA National Centers for Coastal Ocean Science

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INTRODUCTION

Monitoring is an essential part of a restoration plan. Restoration monitoring can be used to document restoration performance, adapt project and program approaches, identify opportunities for ecological enhancement (Good 2002), provide indications of ecosystem condition, warn of environmental decline (Washington et al. 2000), establish a record of conditions or trends, track conditions through a storm or unique event (EPA 1993), and identify gaps in existing scientific knowledge (Kusler and Kentula 1990). However, there are few resources that provide guidance and standards for restoration monitoring. The guidance manual "Science-Based Restoration Monitoring of Coastal Habitats" was written to provide technical assistance, outline necessary steps, and provide useful tools for the development and implementation of scientifically sound and fiscally responsible monitoring of coastal restoration efforts throughout the estuaries and freshwater coastal ecosystems of the United States.

This guidance manual on restoration monitoring includes two volumes. In the first volume, readers will find a framework for the creation of a monitoring program. The second volume contains several tools useful in developing a monitoring plan. Among the tools included in the second volume is a database of coastal restoration monitoring programs in the United States and its protectorates. An overview of this database of monitoring programs is presented here. Specifically, the following items are presented: the purpose of the database, a description of the database and its contents, database design, criteria used for selection of monitoring programs to be included in the database, and an example of a program included in database and its background information.

PURPOSE

The database of monitoring programs will allow restoration practitioners to locate regional and national monitoring programs that may serve as models for the establishment or improvement of their own efforts. These monitoring programs found in the database may also provide restoration practitioners with useful historical data on the condition of coastal areas of the United States. The information presented through this database on each monitoring program is intended to give the general scope of the program and the resources necessary to allow the reader to gather more detailed information as needed.

DATABASE DESCRIPTION AND CONTENTS

The database of monitoring programs in the United States is a review and inventory of current and significant regional monitoring programs in the United States and its protectorates. This database is not a comprehensive list or a national repository of all monitoring programs in the United States, nor is it limited to only government or NOAA run monitoring programs. It is simply as a list of significant examples of monitoring

programs in the United States. Information on each monitoring program is compiled into this easily searchable database available on the Internet. Information provided on each monitoring program includes the name of monitoring program, the coordinating entity, the region in which monitoring takes place, pertinent website addresses, the status or duration of each program, main habitat types in which monitoring takes place, contact person, program goals or objectives, key metrics measured, and other notes pertinent to each monitoring program. Data is not provided through this database. This database will be regularly corrected and updated.

DATABASE DESIGN

From the homepage of the monitoring database users will find much useful information. Information includes an introduction to coastal restoration monitoring, a link to the monitoring guidance document, and instructions for searching the database. Users may search the database for monitoring programs by region of the United States, by habitat type monitored, by parameters measured, or by keyword.

SELECTION CRITERIA

There are several criteria (listed below) used for selection of monitoring programs included in the database. To be included in the database, a monitoring program must meet a majority of these criteria and must be useful in supporting the purpose of the database.

1. *Current.* Monitoring programs selected for inclusion in the database are currently ongoing or recently concluded.
2. *Easily accessible.* Monitoring programs selected for inclusion in the database provide easily accessible information (protocols, data, and other pertinent material). In most cases, this refers to those programs whose information is available on the Internet.
3. *Extensive or long term.* Programs included in the database should be those that are well established and have been collecting data for a long period of time. These programs are most useful because they provide a wealth of historical information on an area.
4. *Governmental and non-governmental programs.* Programs included in the database are those coordinated by federal, state or local governments, non-governmental organizations, volunteer groups, educational groups or any combination of these.
5. *Restoration and general monitoring.* Programs selected for inclusion may fall under either or both of the following two categories. Programs included in the database may be specifically designed to monitor an area before, during, or after a restoration project or series of projects. Programs may also be selected for inclusion if they track the general health of a coastal environment since this can be useful to restoration practitioners.
6. *US coastal areas.* Programs included in the database must monitor coastal health in US coastal areas, including the Great Lakes and the US protectorates. Exceptions to this include water bodies (and their coastal areas) that overlap with other countries. For example, some Canadian Great Lakes monitoring programs may be included in the database because activities in these waters and coasts may affect both countries.
7. *Metrics that relate coastal conditions.* Programs included in the database must monitor the condition of US coasts through the following broad metrics (though programs are not limited to using only these metrics): water quality, contaminants, bacterial, plankton, vegetation, benthos, nekton, other coastal animals (mammals,

birds, reptiles, amphibians), hydrology, sediments, geomorphology, air quality, or human impacts.

EXAMPLE

One example of a monitoring program included in the database is the Alliance Citizen Monitoring Program, part of the Alliance for the Chesapeake Bay (an affiliate of the Chesapeake Bay Program). The monitoring database provides users with the following background information on this program:

- The Alliance Citizen Monitoring program tracks various metrics across the Chesapeake region in Pennsylvania, Maryland and Virginia.
- The habitat types monitored through this program include water column, oyster reef, soft bottom, soft shorelines, mudflats, sea grasses, freshwater submerged aquatic vegetation, and coastal marsh. Metrics tracked through this program include water quality, contaminants, vegetation, nekton, benthos, other associated animals, and bacterial.
- This program began in 1985 and is presently ongoing.
- The goals of the Alliance Citizen Monitoring Program are: to coordinate a regional network of volunteers for monitoring, through various programs, of waters flowing toward the Chesapeake Bay, to train volunteers in monitoring procedures, to provide agencies and organizations with quality baseline data on some areas of the Chesapeake Bay watershed.
- More information can be found by visiting the Alliance Citizen Monitoring website <http://www.acb-online.org/citmon.cfm>, by calling (410) 377-6270, or by e-mailing mail@acb-online.org.

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